models of Internet cost allocation or effective service pricing,[35] in part because the Internet remains highly dynamic, even volatile: the process of system development is nowhere near the point of stability. Therefore, no one business model for the provision of a given service has established long-term viability, let alone dominance. In part, the wide gaps in knowledge are a function of the Internet's status as a decentralized, layered system, beholden to no single centralized authority and building not only on the existing public telecommunications infrastructure, but also on proprietary local area networks.

The established carriers are likely to enter a widening range of other Internet markets, including billing, domain name registration, directory, and other services.

The economic bases of Internet services may remain opaque, however, and the system's growing strategic centrality cannot be doubted. Control over the Internet would confer unique advantages. It is for this reason that the established carriers, at every level from local to transnational, are diversifying into Internet markets.

Systems integrators — organizations that contract to set up and manage business computer networks on an outsource basis — constitute one widening avenue of carrier involvement with the Internet. MCI diversified into systems integration by acquiring Canada's SHL Systemhouse, at a cost of $1 billion, in late 1995.[36] The established carriers are also likely to enter a widening range of other Internet markets, including billing, domain name registration, directory, and other services. But the principal escalation of carrier involvement with the Internet is occurring through their direct forward integration into Internet service provision. Carriers have entered this market in two chief ways: as retailers and as wholesalers. Each is considered briefly below.

Internet service providers (ISPs) manage the retail link with Internet customers, providing connection to the system for a subscription fee and offering various other services. ISPs may be either small or large, and range in scope and orientation. Examples include huge local telephone companies (such as Bell Atlantic), commercial on-line services (such as MSN and AOL), long-distance carriers with abundant local "points of presence" (such as AT&T), and local, not-for-profit organizations. The average number of subscribers per ISP, though it is increasing, is still scarcely 3,000, and there were at last tally some 4,000 ISPs operating in the United States.[37]

It is an open question whether companies that enter the ISP market (and their subscribers) have been privileged to do so at subsidized rates. Under federal regulations introduced in 1983, U.S. ISPs have been repeatedly classed as unregulated providers of "enhanced" service.[38] This designation exempts ISPs from the per-minute interconnection charges that are levied on other long-distance systems that tie in with incumbent local telephone networks. As a result of this sustained federal policy, it is arguable that ISPs enjoy a substantial cross-subsidy that is borne by ordinary voice

users of incumbent local telecommunications networks.[39] To the contrary, others assert that local carriers are making a profit as a result of Internet traffic.[40] Either way, in recent months it has become clear that Internet service capabilities are integral to local telecommunications system development, and local exchange carriers have begun to diversify into Internet service provision.[41]

Internet capabilities are, if anything, even more critical at the wholesale level. Following the federal government's spinoff of the earlier Internet backbone network in 1995, several companies entered the market to provide these wholesale Internet distribution services. They did so by interconnecting with each other at the Internet's officially designated network access points (NAPs) and, increasingly, at privately arranged NAP sites as well. In the United States, 30 such wholesalers (many of which double as ISPs) carry the traffic of the thousands of smaller ISPs.

The five leading backbone suppliers, which together handle an estimated 80% of U.S. Internet traffic are already either owned or in the process of being acquired by major telecommunications carriers.

There exists, however, a sharp differential between the leading wholesalers and the rest; a bare handful of companies dominates this market. All of the five leading backbone suppliers, which together handle an estimated 80% of U.S. Internet traffic (the rest being accounted for by the 25 smaller companies) are, in fact, already either owned or in the process of being acquired by major telecommunications carriers. Some, such as internetMCI or Sprint IP Services, were developed inhouse over a period of years. Others came about through acquisitions: GTE Internetworking was the fruit of GTE's takeover of BBN — the pioneer of internetworking. A comparative laggard, AT&T experienced pressure to introduce its own backbone when BBN — with which it had previously contracted to host a majority of its 2,000 large corporate Internet customers — was acquired by GTE. AT&T then confirmed the Internet's growing strategic importance by announcing that it would increase tenfold the capacity of its 40,000-mile distance fiber network, and it begin offering its 10 million business customers access to its own high-speed Internet backbone at 580 points around the United States.[42]

Although additional would-be wholesalers have announced recently their intent to enter backbone transmission markets,[43] it is fair to claim that even the leading wholesale providers are playing catch-up with WorldCom. Its 1996 takeover of UUNet Technologies transformed WorldCom into one of the two biggest supranational suppliers of advanced data services, with hundreds of local access points worldwide at which business subscribers might connect to its network.[44] WorldCom went on to take over what had previously been the fifth major wholesaler, ANS (which had operated as a captive unit of America Online). With its attempt to swallow MCI, WorldCom stands to finally achieve its goal — unparalleled market dominance over the entire Internet.

The combined company, with some 3,000 points of presence and more than

500,000 router ports, would control an estimated 40-60% of Internet backbone service.[45] It would supply all three leading commercial online services — AOL, CompuServe (which is now an AOL subsidiary), and the Microsoft Network. And it would possess a strategic base for the further rapid build-out of this critical backbone system. MCI announced in December 1997 that it had doubled the core circuit capacity of its Internet backbone, and it predicted that more than half of the company's total network capacity would be dedicated to Internet traffic by 2001. MCI also said it intends to boost backbone circuit capacity again by the end of 1998.[46] Worldcom's Internet backbone, meanwhile, is undergoing aggressive expansion throughout Europe and Asia.[47]

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Onerous effects of this ongoing consolidation are already plain. Until recently, interconnecting backbone networks exchanged packets through unbilled "peering" arrangements, whereby the different vendors simply agreed to allow each others' traffic to transit their respective networks without compensation. Peering arrangements of this kind contributed greatly to the Internet's vaunted "open culture." Today, in contrast, most of the major backbone operators will only interconnect with other operators who, like themselves, also interconnect at all of the system's major network access points. That is, they are beginning to choose — and to refuse — to peer in light of their own strategic and economic considerations.

WorldCom inaugurated this destabilizing trend.[48] And MCI-WorldCom's augmented market share of the Internet backbone would grant it even greater power over the terms and pricing of interconnection. At least some ISPs that buy connectivity from WorldCom have already begun to protest that they will face additional levies as a result of the merger.[49] Gordon Cook, an authority on Internet economics, goes further, declaring that major backbone providers — none of which will come close in terms of market power to MCI-WorldCom — "are in a position to declare themselves the Internet, and it could mean the costs of access are going to go up sharply."[50] Already there is talk of a rapid thinning among the ranks of Internet service providers, in one projection to fewer than 100 within five years.[51] WorldCom's bid to control the Internet offers an affront to recent legislation. The Telecommunications Act of 1996 explicitly intended to promote competition in this critical sector.[52] But, taken together, WorldCom's string of recent acquisitions — prospectively including MCI — accounts for fully half the total value of the $100 billion-worth of telecommunications deals that have occurred since the act's passage.[53] A recent Merrill Lynch report praises WorldCom's recent merger with Brooks and the prospective takeover of MCI, in particular, because they will "reduce...the level of intra-industry competition in both the U.S. long distance and local markets."[54]

The effects of this prospective buildup of market power will extend beyond the plundering of rivals. They will also encompass a growing measure of preferential service provision, as MCI-WorldCom finds means of discriminating in favor of some customers over others. WorldCom's strategy places corporate users of Internet systems and services first, second, and foremost. Premium-grade Internet service packages will be used to target transnational corporate users with priority-access to network bandwidth. The attempt is to develop pricing structures and service applications in support of more robust and reliable service — for users willing to pay higher fees. A commentator who had worked earlier for a company that was acquired by WorldCom places the MCI-WorldCom deal approvingly in this context: "The good news is that, with one company controlling a large portion of the Internet backbone, we could see much faster implementation of quality-of-service and tiered pricing structures."[55]

The effects of this prospective buildup of market power will encompass a growing measure of preferential service provision.

The leading aim of common-carrier regulation historically was to curtail discrimination in service provision by dominant carriers.[56] Yet here is WorldCom, deploying its control over the unregulated Internet to spearhead a powerful discriminatory thrust. To gain a sense of the full import of this strategy, we must look at WorldCom's Internet initiative within the larger context of changes gripping the telecommunications industry.

result, an estimated 20% of AT&T's subscribers account for 80% of the company's $6 billion in annual profit.[62]

WorldCom has gained its current status through its dedicated pursuit of favored customer groups and an equally deliberate neglect of other subscriber market segments. This may be seen most clearly by inspecting recent developments within local telecommunications service.

Incumbent local exchange carriers (ILECs) are the established suppliers that existed at the same time as the Bell System breakup in 1984. Competitive local exchange carriers (CLECs) are the companies that have sprung up to provide local service in the wake of the divestiture. Liberalized policies since that time have encouraged both CLECs and, increasingly, ILECs, to focus on carrying the traffic generated by high-volume business users.

The last thing competitive local exchange carriers want is to be saddled with the costs of supporting ubiquitous access to their networks.

CLECs have been endowed with a signal advantage in this rivalry. "Unburdened by any obligation to provide universal service at a uniform price," according to an official 1987 report on telecommunications industry structure, "a competitor can cream off large business and urban residential customers who are charged above-cost rates by the LEC."[63] Beginning 10-15 years ago, by 1997 more than 100 CLECs had proliferated — and had raised $14 billion in capital investment since passage of the 1996 Telecommunications Act. All told, these CLECs garnered a total of $2.7 billion in annual revenue in 1997, through approximately 1.4 million access lines.[64]

This is not a large sum when compared with the revenues of the ILECs. But it is growing rapidly as CLECs continue to make inroads against ILECs. The CLECs have an advantage because they have been permitted to furnish service using fiber optic cables and specialized wireless circuits, almost exclusively to high-volume business users located in the top 125 U.S. cities; they in turn originate about 80% of U.S. data and voice traffic.[65] CLECs are free to serve only commercial or industrial parks and central-district high-rise office buildings, while Bell and other ILECs support 161 million subscribers across the nation.[66]

It is critical to recognize that the CLECs' success is predicated on an informal, but rigorous, *exclusivity* in provision. The last thing competitive local exchange carriers want is to be saddled with the costs of supporting ubiquitous access to their networks. WorldCom, which is already one of the largest CLECs owing to its acquisitions of formerly independent local carriers MFS and Brooks Fiber, now aims to extend this exclusionary strategy to an altogether new level — through its takeover of MCI. If the acquisition is completed, then MCI's own prior strategy would be remade as well.

For large business users, the arrival of the CLECs indicates that significant

competition in local markets already exists today, as diverse commentators have recently underlined.[67] But what about the needs of residential subscribers? Will MCI-WorldCom deploy its extensive CLEC facilities to engender lower rates and greater value for money in residential service markets? Or will the strategy behind the takeover work to jeopardize inclusive access to telecommunications? It is important to note that in 1996 approximately 3% of total U.S. telephone industry revenue (some $6 billion) was lost to unpaid bills, an increase from the 1% common during the 1970s.[68] Residential subscribers are already having to strain harder to retain access to the network they have paid for.

As compared with AT&T, however, MCI's core revenues have depended disproportionately on business users.

MCI, the second largest U.S. long-distance carrier, has accumulated a substantial residential market base, consisting of some 20 million long-distance customers. As compared with AT&T, however, MCI's core revenues have depended disproportionately on business users. MCI business services, providing telephone, Internet, and data communications to companies, furnish fully two-thirds of its long-distance revenue — which in turn provide nine-tenths of overall corporate revenue. (The remainder comes from an information technology business aimed exclusively at corporate and governmental customers.) In contrast, the majority of AT&T's long-distance revenue comes from residential customers.[69]

In the press of recent competition, MCI's strategic focus has widened to include provision of local services. After spending an estimated $1.7 billion expanding into local exchanges in 31 cities during 1996-97, MCI accumulated approximately 100,000 residential customers in four states. The company also accrued significant losses, which acquired significance in the decision ultimately not to merge with British Telecom. Even as it continued to negotiate with British Telecom last summer, however, MCI was taking steps to "cut its ambitions to attract customers in return for seeking higher operating profits and margins from business customers...."[70] Further, in January 1998, MCI announced that it was abandoning local residential service provision until — reincarnated as a unit of WorldCom — it could construct its own network facilities, perhaps during 1999. For now, the company's president announced, MCI would proceed "with the only business case that makes sense" — furnishing local service to corporate customers.[71]

This objective is not confined to local service markets. If its claimed residential buildout actually comes to pass, MCI has already demonstrated a decided preference for marketing to "power users" — high-value residential customers who purchase an extensive basket of telecommunications and information services, typically amounting (on an annual basis) to $650 on cellular, $500 on local wireline phone service, $400 on long distance, $250 on paging, and additional hundreds of dollars on online access.[72] (Such multiple-service customers also evince a lower "churn" rate.)

Eschewing its earlier advertising pitch to the masses "as an upstart David to AT&T's Goliath," therefore, MCI is trying to reposition itself as "an integrated communications service for more affluent consumers. Using targeted prime-time TV ad buys, it will try to reach well-educated professionals, ages 30 to 50."[73] MCI ad chief John Donoghue in 1996 declared that "We're going to change our focus from being omnipresent to the entire market to talking to the top third of the consumer market that represents opportunities in cellular, Internet, and entertainment."[74]

A WorldCom takeover of MCI will only intensify this strategic shift to serve business and well-off residential subscribers across all service markets. So strong was the lure of business users that, when it initially announced its takeover bid for MCI, WorldCom Vice Chairman John Sidgmore predicted that the combined company would pull away entirely from MCI's consumer long-distance business. The company's strategic vision, he told the *Washington Post*, was based on "wholesaling" network capacity and providing services exclusively to business customers. Pressed on the matter, WorldCom issued a subsequent news release under the headline: "WorldCom Will Not Abandon MCI's Residential Long Distance Customers."[75] But WorldCom's new-found solicitousness in regard to residential customers, observed commentators, "is mainly a pragmatic accommodation, a requirement for regulatory approval for its merger."[76] There is no doubt, analysts agree, that "business customers, rather than consumers, stand to reap most of the near-term benefits" of the deal.[77]

MCI is trying to reposition itself as 'an integrated communications service for more affluent consumers.'

Let us concede that a buildout of CLEC networks beyond the 1.4 million local telephone lines they collectively provide today is not likely. Let us even stipulate that this system-development effort will move beyond business markets into residential service. Nonetheless, absent regulatory intervention, such a prospective buildout will only extend the exclusionary logic that has driven CLEC system development from the outset.

A decade ago, when CLECs were just beginning to appear, a Justice Department study noted that "competing providers of short-haul transmission can target only the very largest customers, managing costs by careful selection of the customers they choose not to serve."[78] Has the asymmetric character of telecommunications demand changed since then? If not, then prepaid phone cards and even telephone arcades — whose pay phones today enjoy a complete absence of price restrictions — are likely to be WorldCom-MCI's chief concessions to residential outreach.[79] Indeed, one commentator has suggested that, "[a]lthough it denies it now," MCI-WorldCom will look seriously at selling its residential voice customers. WorldCom is focused on business services, and may sell its consumer business to help refill its coffers and make up for the inflated purchase price it paid for MCI.[80]

THE SOCIAL COSTS OF CONSOLIDATION

MCI-WorldCom stands to become the first carrier since the pre-divestiture AT&T to offer both domestic local and long-distance service nationwide over its own facilities-based network. Joining MCI's long-distance network and its local CLEC facilities to the CLECs that WorldCom already owns, the combined company would be able to funnel business traffic among leading U.S. (and an increasing number of foreign) cities. This amounts to the consolidation of U.S. telecommunications provision on a radically new basis, which could destabilize the existing telecommunications infrastructure.

Systematically cherry-picking in favor of high-volume users, MCI-WorldCom seeks to establish a premium network for those able to pay.

The merger of MCI-WorldCom would, first, reduce the combined company's dependence on incumbent local exchange carrier (ILEC) networks — facilitating a $250 million annual cut in the access charges that the company presently pays for local traffic pickups.[81] Second, and more important, the deal elevates exclusionary CLEC facilities to a central place within system-development strategy. By integrating these local networks with its long-distance facilities and, specifically, with its tiered Internet services, the merger threatens to establish a freestanding infrastructure that is largely separate from the inclusive public-switched network that currently predominates. Systematically cherry-picking in favor of high-volume users, MCI-WorldCom seeks to establish a premium network for those able to pay.

Meanwhile, the existing public network languishes. In 1990, the U.S. Office of Technology Assessment observed that recent telecommunications policies were likely to have the effect of making "fewer societal resources...available to modernize the publicly shared network."[82] A few years later, this result had already become apparent. One newspaper reported that "the high-quality phone service that once helped define American prosperity can no longer be taken for granted." For example, one of the regional Bell companies (Nynex, now part of Bell Atlantic), "let its network deteriorate in parts of Brooklyn and the Bronx, where corroded wires lead to scratchy lines and service outages. It also cut nearly 14,000 jobs from its payroll since 1994, which left it unable to cope with the swelling demand for phone lines in 1995 and 1996." During the second half of 1995, in the areas served by nine major local exchange carriers, no less than a quarter of all customers complained of a service problem — usually quality or billing — and in some areas the percentage was higher. Nynex's service record became so poor that some $70 million in fines were levied on it by New York regulators in 1996. Nynex missed no less than 142,300 appointments with customers during the last three months of 1994, up 30% from the year before. And there were 212,800 customers whose phones remained out of service for more than 24 hours during the quarter — a

39.8% annual increase.[83] US West, which made significant workforce reductions and construction program cutbacks during the early 1990s, likewise has experienced escalating service problems and customer dissatisfaction throughout its service area.[84] Customer complaints to California state regulators more than doubled during a five-year period (1990-94).[85]

A quick look at one final issue — the changing status of labor relations in the telecommunications industry — further underlines that a WorldCom takeover of MCI would make for poor social policy.

The high-wage unionized segment of the telecommunications industry is under strain as a result of liberalized policies. The regional Bell companies that were spun off by the old AT&T, for example, drew "praise from Wall Street for cutting employment, 're-engineering' their companies and diversifying into new businesses." These seven (now five) giant providers of local telephone service had an employee count of 967,000 in 1984, at the moment of the AT&T divestiture, but this figure had declined to 755,000 by early 1996.[86]

The changing status of labor relations in the telecommunications industry further underlines that a WorldCom takeover of MCI would make for poor social policy.

Downsizing of unionized industry units took several forms. Growing reliance on employees classified as "managers" for purposes of collective bargaining was one source of growth in the scope of nonunion jurisdiction (as well as making these growing strata vulnerable to massive layoffs). Technological change also contributed, as the carriers' reliance on remote diagnostics, testing and repair, and computerized call centers increased. Data-entry jobs, in particular, often could be moved from one location to another with the flick of a switch; Morton Bahr, president of the Communications Workers of America (CWA), asserts that it is "very easy to move [telecommunications] billing and accounting across the border" from high-wage to low-wage areas.[87] This newfound freedom in turn allowed carriers to become more aggressive in responding to employees who attempted to form unions.

The long-distance unit of Sprint set up a San Francisco-based telemarketing subsidiary, relying on Latino workers, to market its long-distance service to the Spanish-speaking community. When these employees of *La Conexion Familiar* sought aid from the CWA in forming a union local, however, they found that Sprint had already circulated a "Union-Free Management Guide," offering local executives methods with which to undermine employees' unionization efforts. Intolerant in principle of collective bargaining rights, Sprint simply shut down its San Francisco operation, laying off 235 workers one week before a scheduled union election. In late 1997, after Sprint appealed an order by the National Labor Relations Board, the U.S. Court of Appeals finally decided that Sprint would have to cease "threatening employees with the closure of any of its facilities if the Union comes in."[88]

Weeks before Christmas in 1986, MCI had already demonstrated an identical resolve. Workers in its Southfield, Mich. office had signed cards to have Local 4009 of the CWA represent them, but no election had been held and the workers had no contract. Under the pretext of a nationwide cost-cutting program, on December 3, 1986 MCI terminated approximately 450 Southfield employees with no notice. The action — which MCI attempted to justify as one part of a larger "company wide restructuring" — prompted CWA to file an unfair labor practice suit against MCI.[89]

As nonunion carriers gain market dominance, they are beginning to push for lower wages.

As an authoritative account suggests, in consequence, "an antiunion environment increasingly surrounds the core of unionized telephone work."[90] Expansion within the competitive sector of the industry offset somewhat the loss of jobs covered by collective bargaining agreements, but as nonunion carriers gain market dominance, they are beginning to push for lower wages. The extent of their success will likely become visible only when the economy enters its next recessionary phase.

Thus, WorldCom's acquisition of MCI would do more than merge two existing nonunion carriers. By consolidating the nation's second-largest carrier in its status as an anti-union employer, the merger will bolster the egregious labor relations practices in the industry's competitive high-wage sector. This is not a happy prospect if the goal is to preserve a high-wage economy in the United States.

CONCLUSION

MCI-WorldCom is a mistake waiting to happen. The combined company's financial health would be uncertain. Its prospective dominance over the Internet would crowd out rival vendors and imperil interconnection on nondiscriminatory terms. The premium services that it would target at high-volume business users would come at the expense of residential services. Together, these changes would harm the nation's telecommunications system at exactly the moment when the health of that infrastructure is becoming the *sine qua non* of the overall economy's well-being. Can the United States afford to risk the creation of a new telecommunications monopoly as the 21st century dawns? Regulators must step up to address this question now and stop the proposed merger before a merged MCI-WorldCom can consolidate its prospective market dominance into a monopoly position.

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